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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,702	06/19/2001	Muhammad A. Hawwa	PA1901US	4047

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EXAMINER

KIANNI, KAVEH C

ART UNIT PAPER NUMBER

2877

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,702

Applicant(s)

HAWWA, MUHAMMAD A.

Examiner

Kevin C Kianni

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 1-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 53-61 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The applicant's election without traverse of the invention Group IV, in paper no. 8, claims 53-61, is acknowledged and therefore the restriction is made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 53-61 are rejected under 35 U.S.C. 103(a) as being obvious over Howe et al. (US 5043043).

Regarding claims 53 and 55-58, Howe teaches a method for making an optical switching component (shown in at least fig. 2; see abstract) comprising: providing a substrate 33; forming a stator 91 by defining a cavity within the substrate (shown in fig. 6, the stator 91 is formed along with cavity in substrate 90); forming a mask layer 92 over the stator 91 and filling the cavity (shown in fig. 6, items 92 and 91 and filled cavity); forming an opening in the mask layer (shown in fig. 6e, item opening); forming in vicinity of the opening a rotor (shown in fig. 6, item rotor formed in vicinity of the opening, i.e., fig. 6e) and a pivotal connection to the stator (shown in fig. 1, item electrode 17 is pivotally connected to stator 13); removing the mask layer (col. 13, lines

45-50); and forming a piezoelectric actuator between the stator and the rotor (see col. 12, lines 3-15, wherein, as shown in at least fig. 1a-b, item electrodes 17 are formed between stator 13 and rotor 11).

Howe further teaches defining cavity using etching method (see fig. 6, items cavities using etching methods; see col. 2, line 67-col. 3, line 2+), including chemical etching (see col. 11, line 68-col. 12, line 1). However, Howe does not specifically teach (a) wherein the above rotor is formed within the opening, (b) forming opening/cavity using photolithography; the mask layer includes photoresist. It would have been obvious to a person of ordinary skill in the art when the invention was made to enlarge the opening of Howe, shown at least in fig. 6e, so as rotor would be within the opening, since such configuration is desired choice of an ordinary skill in the art for arrangement of the parts which is possible in this invention (see col. 7, lines 10-17) and since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; regarding limitation (b) it would have been obvious to person of ordinary skill in the art when the invention was made to use a conventional photoresist material as a mask for Howe's mask (i.e. mask 93) (see us 6430333 provided herein as prior art) and conventionally photolithography as etchant technique instead of Howe's chemical etching (see US 6535663 and US 6360036 provided herein as prior art) since the resultant switching system would enable the generation of high strength electric fields and high torque densities which form large actuating forces (see col. 2, lines 45-53) and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a

matter of obvious design choice. In re Leshin, 125 USPQ 416. and that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

Regarding claims 54 and 59-61, Howe further teaches wherein the substrate includes silicon (col. 2, line 66); wherein forming a piezoelectric actuator is performed before forming a rotor (see col. 10, lines 49-56, wherein electrodes are inherent part of piezoelectric in which are formed before completion of the rotor member 73a; furthermore; the arguments regarding arrangement of parts are analogous in rejection of claim 1, above); wherein forming a piezoelectric actuator is performed by a deposition process (see col. 1, line 61-col. 2, line 7+; wherein microactuator that includes piezoelectrically pumped cavity is known as a piezoelectric actuator; see also the conventional piezoelectric actuator in US 6522802 and 6362556 provided herein as prior art references); wherein forming a piezoelectric actuator is performed by a mechanical process (see col. 13, lines 51-59).

Citation of Relevant Prior Art

4. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Little et al. 6430333 teaches photoresist

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Hoen 6522802

Hoen 6362556

Nishi 20020018192

Fflyn et al. 5293094

Chertkow 6535663 teaches piezoelectric actuator with photolithography etching

Couillard 6360036 teaches piezoelectric actuator with photolithography etching

These references are cited herein to show the relevance of the apparatus/methods taught within this reference as prior art.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaveh Cyrus Kianni whose telephone number is (703) 308-1216.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (703) 308-4881.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-7722, (for formal communications intended for entry)


or:

(703) 308-7721, (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South
Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

Kevin Cyrus Kianni
Patent Examiner
Group Art Unit 2877


Frank Font
Supervisory Patent Examiner
Group Art Unit 2877

April 1, 2003